

The Bay Institute *of San Francisco*

*** MEMORANDUM ***

May 12, 1996

TO: CALFED Bay-Delta Program staff
B-DAC Ecosystem Restoration Work Group members

FR: Gary Bobker

RE: Ecosystem restoration focus and strategy

This memorandum describes a few rough thoughts in response to the April work group meeting and the meeting materials.

In planning for restoration of ecological health to the Bay-Delta ecosystem, the CALFED Bay-Delta Program will need to devote considerably more time and resources than it has to date. Nobody ever said that restoring a complex, large ecosystem which is highly degraded and subject to competing resource uses on an unprecedented scale would be easy, but the potential payoffs are tremendous, both for the Bay-Delta and for restoration efforts elsewhere. The formation of the work group and the drafting of the restoration strategy are promising signs, and the direction the strategy is headed seems basically sound, but – the Program is still behind the curve. Formulating and refining a well-articulated restoration plan has to guide EIS/EIR alternative development and evaluation. Unfortunately, there exist significant disparities between the Program objectives and strategy on one hand and the draft alternatives on the other.

Work group focus

Mary Selkirk's April 19 memo identified four specific ecosystem restoration policy issues now facing the CALFED Program. Some suggestions for addressing these issues follow.

1. Development of an appropriate vision for Bay-Delta restoration

Phase I:

- adoption of a draft Bay-Delta Restoration Plan by the CALFED Program, concurrent with selection of a short list of alternatives for formal

CEQA/NEPA analysis. The plan should include a set of draft quantitative targets for short- and long-term restoration, a set of draft ecological indicators, draft adaptive management regimes, and draft institutional elements to ensure long-term restoration.

- formation of a CALFED Program interdisciplinary restoration planning unit composed of appropriate current Program staff, new Program staff (including at least one nationally recognized restoration ecologist or resource manager with experience in large-scale restoration and one nationally recognized conservation biologist), and recognized local technical experts with a high level of Bay-Delta experience (such as the members of the Delta Native Fishes Recovery Team).

Phase II:

- refinement of short- and long-term targets, ecological indicators, adaptive management regimes, and institutional elements to ensure long-term restoration, by the restoration planning unit, with review by a blue-ribbon panel of nationally recognized experts in conservation biology and restoration ecology.
- certification of a final ^{Programmatic} EIS/EIR for the Bay-Delta Restoration Plan as part of the long-term Bay-Delta solution.

Phase III:

- implementation of restoration activities to meet short-term targets, initiation of adaptive management regimes, and creation of institutional elements to ensure long-term restoration (see below).

2. Targets and reference conditions

In the short term (5 - 10 years), achieve quantitative targets for restoration of structural and functional elements and removal of stressors in order to ensure :

- protection of native biodiversity in general, and recovery and maintenance of viable populations of estuary-dependent native plant and animal species of concern in particular. (The Program needs to incorporate plant concerns more fully).
- natural production of viable populations of valuable fish and wildlife species for desirable levels of long-term recreational and commercial harvest.

Short-term targets should meet threshold criteria for habitat quantity and quality (i.e., areal extent, geographic distribution, minimum patch size, connectivity, diversity of habitat type, use by different species and by different life history stages of individual species, duration, effects of inter- and intra-annual variability).

In the long term (5 - 30 years), achieve quantitative targets for restoration of structural and functional elements in order to ensure:

- recovery and maintenance of dynamic biological communities (plant and animal) with overall species composition, diversity, and functional organization comparable to the historic natural habitat in complexity, resilience to stress and self-sustainability, and favoring native species biodiversity to the maximum extent possible. ("Comparable" to the historic natural habitat should not be interpreted to mean habitat configurations or species composition identical to the historic natural habitat).
- recovery and maintenance of natural Bay/Delta ecosystem dynamics (habitat mosaic, hydrological patterns, etc) at the ecosystem level, within each ecological zone, and throughout each habitat type, comparable to the historic natural habitat in complexity, resilience to stress and self-sustainability.

Long-term targets should meet the same threshold criteria as short-term targets. Where sufficient information to set long-term quantitative targets does not yet exist, a set of lower-resolution targets should serve as a default for planning purposes. These default targets should include broadly-defined, "vision"-level targets such as restoring 25 percent or more of predisturbance habitats.

Specific milestones should be identified for the implementation of both short- and long-term targets:

- Phase I – year 1
complete program, institutional and other arrangements to achieve target.
- Phase II – years 3 - 5
 - full achievement of high priority targets
 - 50 percent progress toward full achievement of all targets
- Phase III – years 5 - 10
full achievement of all targets and attainment of desired ecological condition.

A better understanding of historical structure and function in the predisturbance Bay-Delta ecosystem is necessary in order to achieve recovery of community and ecosystem dynamics comparable to those of the historic natural habitat.

(Consumer disclaimer: The Bay Institute has been seeking funding to perform such an assessment of the historic natural habitat).

3. Adaptive management

As an outgrowth of the CALFED Program restoration planning unit, an ongoing Bay-Delta Restoration Program would:

- sponsor and/or conduct research on Bay/Delta ecosystem dynamics.
- study the efficacy of ongoing restoration activities.
- monitor and diagnose trends in ecosystem health.
- refine and revise short- and long-term targets based on new scientific information.
- refine and revise ecological indicators based on new scientific information.

The long-term Bay-Delta Restoration Program could be housed at CALFED (since there will be ongoing regulatory responsibilities for restoration oversight) or at a new Bay-Delta Conservancy (see below). Research and monitoring activities could be coordinated with or contracted to the Interagency Ecological Program, the San Francisco Estuary Institute, the University of California, or other entities.

4. Institutional assurances/structures

At least three actions are necessary to ensure that long-term ecosystem restoration will be implemented and maintained:

- creation of a Bay-Delta Conservancy or Bay-Delta Restoration Trust. The sole purpose of this independent entity would be to support ecological restoration activities in the Bay-Delta estuary. The Conservancy would acquire lands, water, and water rights to support restoration activities; both restored physical habitat and dedicated flows could be managed by the Conservancy itself and/or by designated agencies (i.e., U.S. Fish and Wildlife Service, The Nature Conservancy). Legislation to improve the ability of

environmental interests to acquire and maintain water rights may be necessary.

- creation of an independent revenue stream for the Bay-Delta Conservancy, and possibly other ecosystem restoration efforts. This new funding source should be a) self-sustaining (i.e., combined revenues from dedicated portion of sales tax, water supply and recreational user fees, etc), b) of sufficient size to adequately fund acquisition and management of land and water (including water rights) for large-scale restoration (i.e., no less than 25 percent of predisturbance habitat), and c) unable to be diverted to any other purpose but ecological restoration activities by the Bay-Delta Conservancy and/or other designated entities.

- conferring of legally protected special status on the Bay-Delta ecosystem. Protected status should occur on several levels --

- a) state (i.e., finding by the State Water Resources Control Board that the Suisun Bay-Delta ecosystem constitutes an Outstanding National Resource Water having exceptional ecological significance),

- b) national (i.e., designation of Suisun Bay and the Delta as a National Wildlife Refuge or National Scenic Area), and,

- c) international (i.e., designation of Suisun Bay and the Delta as a protected biological reserve of global significance through an international treaty).

Ecosystem restoration strategy

Two brief comments on the April 19 draft document follow.

1. Limiting factors

The use of the term "limiting factor" in the strategy document is somewhat misleading (as was apparent at the meeting), in that it is traditionally used to identify a key factor which controls the abundance and distribution of plant and animal populations. As applied in the strategy document, the term more appropriately used might be "stressor" rather than "limiting factor." Removal of a "stressor" would relieve critical sources of mortality and reduced survivorship on estuary-dependent plant and animal species of concern, and therefore would constitute a high priority target for short-term restoration activities. Removal of a

single "stressor" would not, however, necessarily result in a desired level of abundance and distribution of target populations, since other "stressors" may also act as limiting factors, including the lack of suitable overall habitat quality and quantity. Nor should removal of "stressors" for a target population be allowed to substitute for the restoration of structural and functional elements which would support diverse, resilient communities and ecosystems. If my reading is correct, the term "limiting factor" should be replaced, and the intent of the strategy document clarified in this regard.

2. Full implementation targets versus adaptive management targets

The strategy document states that "target levels will be defined differently for [components] that will be addressed by pilot projects using an adaptive management approach versus those to be addressed with full implementation" (p. 5). In cases where an adaptive management approach is appropriate for selection of short-term quantitative targets, the following are also necessary:

- well-defined, qualitative targets which can be easily quantified given sufficient scientific data should also be identified, and milestones for achieving them.
- a more broadly defined, "vision"-level quantitative target should also serve as a default, as discussed above.